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Notes on North American Butterflies. 2.

parts by

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ABSTRACT. New natural history elements and distribution records of several North American butterflies are reported. While diversity and distribution of butterflies in North America are commonly believed to be fully known, the findings presented here show that much is yet to be learned of our butterfly fauna.

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The seasonal forms of *Heraclides cresphontes* Cramer, 1777, and clarification of the status of *H. c. pennsylvanicus* F. H. Chermock & R. L. Chermock, 1945

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ABSTRACT. The purpose of this paper is to visually illustrate the difference between the spring and summer forms of *Heraclides cresphontes* and to clarify the status of *Heraclides cresphontes pennsylvanicus* as a spring form. *H. c. pennsylvanicus* was described from a series of specimens of the spring brood, taken at State College, Pennsylvania. Shiraiwa, et al (2014) published a summary of the status of *pennsylvanicus*. Spring brood individuals from several locations are illustrated here and contrasted against summer individuals in those same areas.

Additional key words: Infrasubspecific, spring form, summer form.

INTRODUCTION

Pieter Cramer (1779) was the first to illustrate the familiar Giant Swallowtail - as '*Cresphontes*' (**Fig. 1**). There was minimal descriptive text. The butterfly was described as being found "in New York and on the island of Jamaica, as well as in South Carolina".

106 BESCHRYVING VAN

PLAAT CLXV.

Fig. A. Creſphontes. Deze geſtaarte Kapel of Pagie, heeft de grondkleur der vleugelen op de bovenzyde donkerbruin, daar de Mannetjes in tegendeel, (gelyk uit de afbeelding op de volgende Plaat Fig. B. te zien is,) dezelve zwart hebben. De blaauwe vlakken aan beide zyden der ondervleugels beſtaan uit glinſterende ſiertjes. Zy behoort onder de Griekſche Ridder-Kapellen van den Heer *Linnæus*, en word in *Noord-Amerika*, te *Nieuwjork* en op het Eiland *Jamaika*, als mede in *Zuid-Carolina* gevonden.

D'Aubenton, Planch. enl. 69. La Feſtonnée.

DESCRIPTION DE

PLANCHE CLXV.

Fig. A. Creſphontes. *Le fond du deſſus des aîles de ce Papillon à queue ou Page eſt d'un brun-obſcur, tandisque les Mâles au contraire (comme on peut le voir ſur la Planche ſuivante, Fig. B.) l'ont noir. Les taches bleues des deux côtés des aîles inférieures ſont compoſées d'atomes luiſants. Il appartient aux Chevaliers Grecs de Mr.* Linnæus *& ſe trouve dans l'*Amérique Septentrionale, *a la*Nouvelle-York *& dans l'Isle de la* Jamaïque, *comme auſſi dans la* Caroline Méridionale.

D'Aubenton, Planch. enl. 69. La Feſtonnée.

Fig. 1. Original description of *H. cresphontes* in Cramer (1779); Dutch on left, French on right.

Translation: "This tailed Chapel or Page, has the ground color of the wings on the upper side dark brown, as the males on the contrary, (as can be seen from the picture on the next Plate Fig. B.,) have the same black. The blue surfaces on both sides of the underwings consist of shimmering leaves. It belongs to the Greek Knightly Chapels of Mr. Linnaeus, and is found in North America, in New York and on the island of Jamaica, as well as in South Carolina."

Fig. 2. Illustration of *H. cresphontes* in Cramer (1779).

The illustrated specimen in Cramer (1779) depicts a summer form (**Fig. 2**) as evidenced by a broad irregular band of black on the ventral hindwing. It is unclear if the illustrated specimen came from a summer flight originating in New York or elsewhere. This (**Fig. 2**) is likely the illustrated specimen that the Chermocks referenced, for comparison to their *pennsylvanicus.* However, Shiraiwa, et al (2014) designated a neotype for *cresphontes,* represented by a spring form specimen from New York (**Fig. 3**).

Fig. 3. Neotype specimen of *H. cresphontes.* Photos courtesy © National Museum of Natural History, Washington, D.C.

The Chermocks (1945), in their original description of *H. c. pennsylvanicus*, provided the following: "The upper surface of this race is similar to typical *cresphontes*…The lower surface of this race is diagnostic, distinguishing this race from typical *cresphontes*. The yellow spots of the primaries are larger and more elongated than in the typical form. The marginal and submarginal rows of spots are separated by a very narrow black line which broadens between M_1 and the inner margin. The secondaries are uniformly yellow except for a transverse marginal row of the blue lunules bordered by a very narrow black line…" The authors concluded: "*Pennsylvanicus* is probably the northern race of *cresphontes*…After examining hundreds of specimens of this species from Florida and Georgia, west to Arizona and Mexico, we found no southern specimens comparable to the new race. However, examples from Ohio, Michigan, and Ontario exhibit the characters of *pennsylvanicus* and may be considered that race." The holotype (**Fig. 5**) is deposited in the Carnegie Museum of Natural History. The labels of the types of both *H. cresphontes* and *pennsylvanicus* are shown here (**Fig. 4**). It is evident that the Chermocks did not examine adequate series of spring form *cresphontes* from Florida to note presence of the spring form.

Fig. 4. Type labels of *cresphontes* and *pennsylvanicus.*

Fig. 5. Holotype specimen of *H. c. pennsylvanicus.* Photo © by permission of the Carnegie Museum of Natural History.

HISTORICAL SYSTEMATIC TREATMENT OF *PENNSYLVANICUS* FOLLOWING ORIGINAL DESCIPTION

Klots (1951) listed *Papilio cresphontes pennsylvanicus* at subspecific rank. The range was given as Transition Zone and Upper Austral Zone of Midwest. Klots stated: "Not a very well marked subspecies. Probably the species forms a gradual cline."

Forbes (1960) noted: "var pennsylvanica Chermock & Chermock…it is the northern form, typical in Pennsylvania to Michigan…and invading New York, also as a spring form further south."

dos Passos (1964) listed *Papilio cresphontes pennsylvanicus* at subspecific rank.

Emmel (in Howe, 1975) states under *Papilio cresphontes*: "The northern populations have been named *pennsylvanicus*…but this subspecies is only weakly differentiated.

Tyler (1975) listed *Papilio cresphontes pennsylvanicus* at subspecific rank, but comments: "Similar specimens are said to have been taken in Florida, in which case this would be a form rather than a subspecies."

Miller & Brown (in Hodges, 1983) listed *Papilio cresphontes pennsylvanicus* at subspecific rank.

Subsequent authors did not consider *pennsylvanicus* at subspecific rank, thus the most recent treatment in Pelham (2023) reflects this.

DESCRIPTION OF THE SPRING AND SUMMER FORMS

An examination of specimens in the McGuire Center for Lepidoptera and Biodiversity, in the Smithsonian National Museum of Natural History, in the American Museum of Natural History, and in online images in www.iNaturalist.org and www.butterfliesandmoths.org confirmed the two distinct seasonal phenotypes, more pronounced in the north by flight period, and with considerable seasonal overlap in the deep south. The original description of *pennsylvanicus* is consistent with the spring brood of *H.*

cresphontes range wide. Dorsally, *cresphontes* varies little between spring and summer broods, though the males and females do show a small degree of dimorphism (**Fig. 6a and 6c**), with females displaying slightly reduced, slightly paler yellow patterns than the males.

The **spring form** (=*pennsylvanicus*) (**Figs. 6, 7 & 8**) is primarily identified by the narrow median band on the hindwing venter. The median band is black, containing a series of blue lunules within each wing cell. The large yellow ventral patches and markings on both sets of wings are greatly enlarged. Spring individuals display a reddish patch in the center of the ventral hindwing.

The **summer form** (**Figs. 9, 10 & 11**) is primarily identified by a broader median band on the hindwing venter. The median band is black, containing a series of enlarged blue lunules within each wing cell. The large yellow ventral patches and markings on both sets of wings are reduced in size, compared to the spring form. Summer individuals generally do not have the ventral reddish patch or it is much reduced.

The difference between broods is most pronounced in the north (**Fig. 12**), with little overlap in development of the seasonal features. Both wild-caught and ex-diapause lab-reared spring brood individuals in northern Virginia and Maryland display the spring form characters, whereas summer individuals that were wild-caught or lab-reared offspring of spring brood females will appear as the typical summer form.

In Florida, the spring phenotype is essentially identical to Pennsylvania spring forms, occurring statewide with records variably from December to April, as far south as Big Pine Key in the Florida Keys. The summer phenotype, however, is present statewide during all months. There is considerable overlap in the dates of the spring and summer phenotypes, which I consider variable depending on prevailing seasonal conditions. Warmer winter conditions will encourage production of summer phenotypes throughout the winter months. Intermediate specimens have been shown to occur in March and April.

In interior continental locations such as eastern Missouri, spring forms generally fly during the first (spring) brood, though along the Gulf Coastal Region to Texas, summer forms and intermediates are evident year-round. Summer forms are exclusively found during summer broods, range wide.

CONCLUSION

It is determined that the taxon described by F. Chermock & R. Chermock as *pennsylvanicus* represents the seasonal spring form of *H. cresphontes* throughout the entire range of the species. It occurs infrequently as far south as the Florida Keys during winter months. The summer form occurs range wide during the summer months, and also infrequently with the spring form in Florida throughout the winter months.

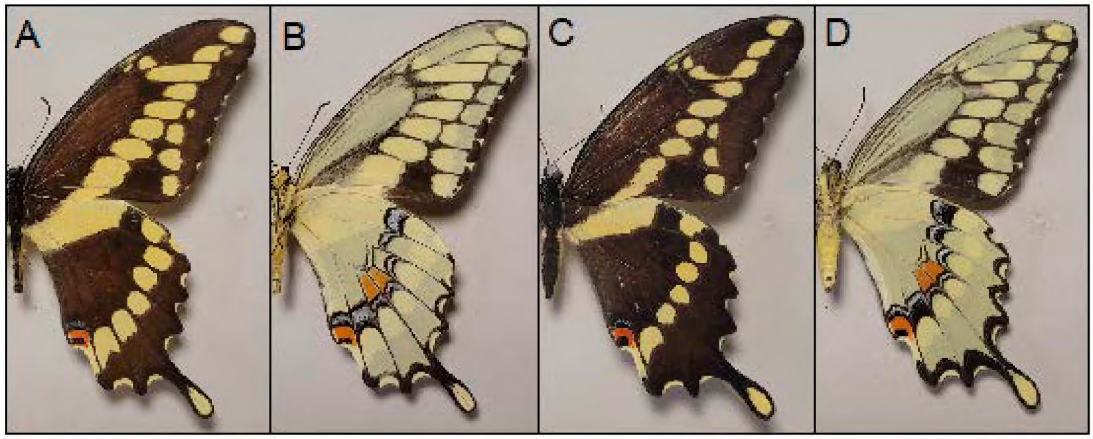

Fig. 6. Spring brood, ex-Herndon, Fairfax Co., VA: (A) male dorsum, 5/25/1995; (B) male venter, (same data); (C) ♀ dorsum, ex-ova, em. 4/22/2004; (D) ♀ venter, (same data).

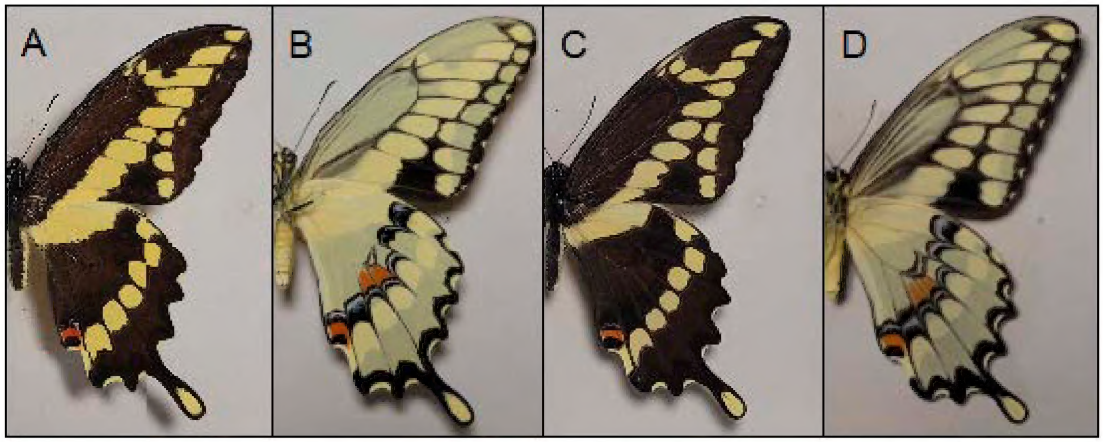

Fig. 7. Spring brood, ex-Gore, Frederick Co., VA: (A) male dorsum, ex-ova, em: 4/17/2012; (B) male venter, (same data); (C) ♀ dorsum, ex-ova, em. 12/19/2009; (D) ♀ venter, (same data).

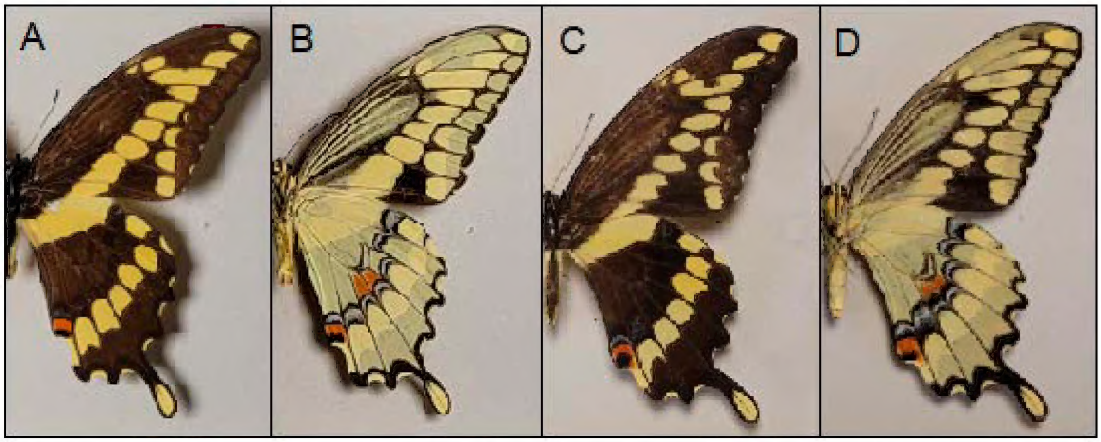

Fig. 8. Spring brood: ex-Kingsley Plantation, Duval Co., FL: (A) male dorsum, 4/16/1983; (B) male venter (same data); ex-Hague, Alachua Co., FL: (C) ♀ dorsum, 3/16/1997; (D) ♀ venter, (same data).

Fig. 9. Summer brood, ex-Seneca, Montgomery Co., MD: (A) male dorsum, ex-ova, em: 7/9/1982; (B) male venter, (same data); (C) ♀ dorsum, ex-ova, em. 7/12/1982; (D) ♀ venter, (same data).

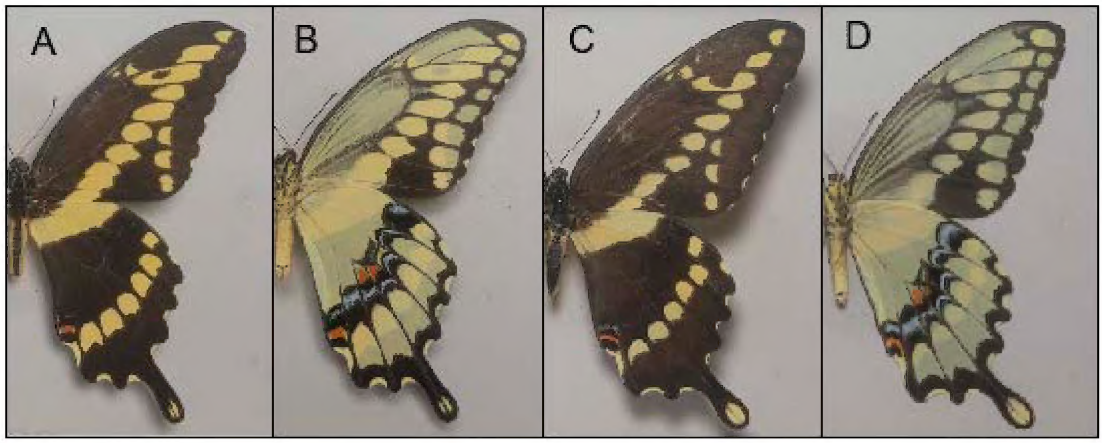

Fig. 10. Summer brood, ex-Gore, Frederick Co., VA: (A) male dorsum, ex-ova, em: 7/8/2006; (B) male venter, (same data); (C) ♀ dorsum, ex-ova, em. 7/8/2006; (D) ♀ venter, (same data).

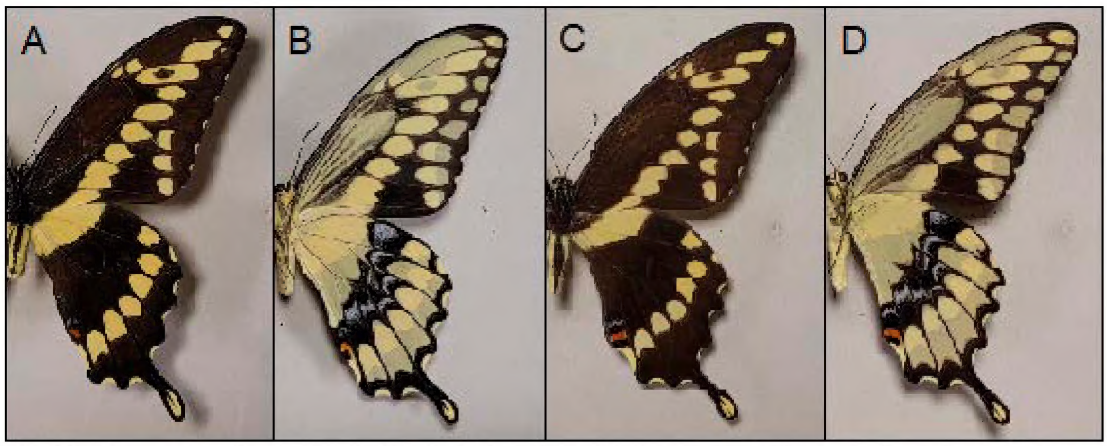

Fig. 11. Summer brood, ex-Graham, Bradford Co., FL: (A) male dorsum, 8/20/2005; (B) male venter (same data); (C) ♀ dorsum, 8/25/2005; (D) ♀ venter, (same data).

Fig. 12. Comparison of typical spring (left) and typical summer (right) broods.

ACKNOWLEDGEMENTS

Thanks go to Ricky Patterson for review of the manuscript; Vanessa Verdecia (Carnegie Museum of Natural History, Pittsburgh) for locating and photographing the original *pennsylvanicus* holotype specimen. Neotype image of *cresphontes* from butterfliesofamerica.com.

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Distribution of Edith's Copper *Tharsalea editha* in Canada

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ABSTRACT: Edith's Copper (*Tharsalea editha*) is a butterfly of conservation interest in Canada. Observations from the past 20 years are summarized and new locations are documented. This species now occurs annually in southeastern British Columbia; however, its range remains restricted.

INTRODUCTION

The first record of Edith's Copper (*Tharsalea editha*) in Canada was a specimen collected near High River, Alberta, by Thomas Baird in the early 1900s (Anweiler and Schmidt 2003). The species was not reported again until 2004 when Christian Schmidt found it south of Cranbrook in southeastern British Columbia (BC; Kondla 2007) in the Regional District of East Kootenay (RDEK). In 2006, Dean Nicholson recorded two more in the Cranbrook area (Kondla 2007; D. Nicholson, pers. comm.), and Norbert Kondla collected several from Yahk in the Regional District of Central Kootenay (RDCK; Kondla 2007).

The primary purpose of this summary is to provide updated status information for the evaluation of potential conservation priorities in Canada and the western provinces. This species is on the BC red list (considered to be endangered or threatened; BCCDC 2024), and on the arthropod candidate list for potential national assessment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC 2024). This article summarizes records of Edith's Copper in Canada since 2006.

METHODS

Personal observations of Edith's Copper are summarized. In addition, I contacted naturalists and lepidopterists with local knowledge in southeastern BC and checked online databases including iNaturalist, Global Biodiversity Information Facility (GBIF), eButterfly, Butterflies and Moths of North America (BAMONA), BugGuide (Van Dyk 2024), and the Lepidopterists' Society's Season Summary on Symbiota Collections of Arthropods Network (SCAN) for additional records in Alberta and BC (see the references section for links to these resources).

RESULTS

Based on the queries listed above, there have been no reports of Edith's Copper in Alberta subsequent to the historical record from High River. All records summarized here are from BC (Fig. 1). There are two records for the RDEK since 2006, both by Dean Nicholson: one from the Kimberley area on August 5, 2012, and a probable individual northeast of Cranbrook on August 4, 2018 (D. Nicholson, pers. comm.; Table 1).

Nearly all recent records are from the Nelson area in the RDCK (Figs. 2-4; Table 1). The first report of Edith's Copper in the RDCK after 2006 was a male I discovered on July 13, 2013, along a powerline right-of-way just north of Nelson, the Arndt property site, at approximately 600 m elevation. Two days later, I found at least one male, possibly up to three, along an old railway line south of town, the Salmo R site, at an elevation of about 900 m. This location was not visited in subsequent years; however, in 2017,

Paul Prappas found Edith's Coppers at a nearby location, Apex wetlands, also approximately 900 m elevation. Observations of one to two individuals were made on August 15, 16, & 31. Up to 5 individuals were recorded at this site by Prappas in 2018 between August 1 and 21.

In 2019, I made targeted surveys for Edith's Copper at Apex wetlands. One transect, approximately one kilometre long, was followed six times from July 22 to September 3. One to four individuals were observed on each of these visits. Almost all coppers seen were males; one female was observed and photographed on July 22 near its likely host plant, *Rumex acetosella.* No oviposition behaviour was detected. The male seen on the last visit on September 3 was extremely worn but could still fly. This is the only September record for BC. This site, Apex wetlands, is the highest elevation of the Nelson locations and the copper's flight there is typically slightly later. Incidental observations in 2019 include one by Prappas at the Prappas property on July 8, and three by me at the Arndt property on July 3 (two males) and July 31 (one female). Both locations are at approximately 600 m elevation.

Edith's Copper was observed in 2020 at three of the previously known sites in Nelson and at a new location just west of town discovered by Prappas near Grohman Creek. Observations at the RDCK Nelson area sites for 2020 through 2024 are summarized in Table 1.

In 2022, I discovered a new location for Edith's Copper at Beaver Creek Provincial Park near Trail, in the Regional District of Kootenay Boundary (RDKB), while conducting butterfly surveys for the Kootenay Native Plant Society. Two coppers were observed on July 11 (Table 1). At this location in 2023, one to two coppers were observed on three dates from June 23 to Jul 14, and in 2024, I observed three to four coppers between June 28 and July 14. Butterfly surveys at Beaver Creek Provincial Park began in 2021 but the species was not detected that year.

In southeastern BC, Edith's Copper has been found in open, disturbed areas, often near water. All the sites that I personally have observed contain Sheep's Sorrel (*Rumex acetosella)*, which is a likely host plant in BC. In addition to Sheep's Sorrel, native Willow Dock (*Rumex triangulivalvis*) is present at the Beaver Creek site (McKenzie and Machmer 2021). Edith's Copper has been observed nectaring on Oxeye Daisy (*Leucanthemum vulgare*), Common Yarrow (*Achillea millefolium*), aster (*Symphyotrichum* sp.), Tansy (*Tanacetum vulgare),* clover (*Trifolium* sp.), vetch (*Vicia* sp.), and possibly Wild Chives (*Allium schoenoprasum*) and Coreopsis (*Coreopsis tinctoria).*

The most consistent site for finding Edith's Copper from 2017 to 2021 was Apex wetlands south of Nelson. This is a former rail trail adjacent to a marshy area; during those years the trail was narrow and lined with a variety of native and invasive flowering plants, making for a productive site for observing butterflies. Up to seven Edith's Coppers could be observed in the one-kilometre section that was visited by Paul Prappas or me several times each summer. The trail was occasionally mowed in late summer. In late 2021 or early 2022 it was widened to more than 3 metres and surfaced with gravel. These changes affected much of the weedy margin that contained Sheep's Sorrel and potentially impacted the copper population there. After the habitat was modified, fewer visits were made for butterfly watching and monitoring, and fewer numbers of coppers were observed. One copper was seen at this location in 2022, one in 2023, and none in 2024. Because the low numbers co-occurred with a period of decreased effort, it's not possible to conclude definitively that the population is declining. If time allows, in 2025 I will attempt to determine whether the population at Apex wetlands persists.

CORRECTIONS TO CONSULTED DATABASES

Erroneous or misleading records of Edith's Copper in BC were found in two of the databases that were consulted. On eButterfly (see references for the link to this resource), two historical Edith's Checkerspot specimens from Vancouver Island are mistakenly named as Edith's Copper (checklists #76936 and #77022). Secondly, one of my Edith's Copper observations in the Lepidopterists' Society Season Summary SCAN database (Catalog **#:** LEPSOC_A_00076013) contains incorrect coordinates, resulting in the appearance of the copper's range extending significantly further north in BC than it actually has been found.

SUMMARY

There have been no reports of Edith's Copper in Alberta following a single record at High River more than a century ago. In BC, the species has been observed sporadically in the Cranbrook area (RDEK) since 2004; annually in the Nelson area (RDCK) since 2017; and each year since 2022 at a new location near Trail (RDKB). All records for BC are from the southeastern corner of the province. Its occurrence in Canada remains limited.

Fig. 1. Map of southeastern British Columbia, Canada, with names and boundaries of regional districts indicated in orange. Locations of all known Edith's Copper observations in BC are shown. Previously published records are in purple (see Kondla 2007; A: location of Schmidt's record from 2004; B: Nicholson's observations in 2006; and C: Kondla's records from 2006). Recent records (2012 to 2024) are in red; numbers correspond to those given in Table 1. (Base map courtesy of Ministry of Agriculture; green shading is Agricultural Land Reserve.)

Fig. 2. Edith's Copper, ventral. August 2, 2020. Apex wetlands. Photo by P. Prappas.

Fig. 3. Edith's Copper male, dorsal. July 8, 2019. Prappas property. Photo by P. Prappas.

Fig. 4. Edith's Copper female, dorsal. July 22, 2019. Apex wetlands. Photo by J.E. Arndt.

Site No.	Regional District	Nearest Town	Lat	Long	Elevation[a]	2012	2013	2017	2018	2019	2020	2021	2022	2023	2024	Flight dates summary
1	RDEK	Kimberley	49.671°	-115.930°	1000 m	Aug 05										Aug 05
2	RDEK	Cranbrook	49.581°	-115.671°	800 m				Aug 04							Aug 04
3	RDCK	Nelson – Arndt property	49.521°	-117.282°	600 m		Jul 13			Jul 03 – Jul 31	Jul 31	Jul 03 – Jul 23	Jul 30		Jul 03 – Jul 12	Jul 03 – Jul 31
4	RDCK	Nelson – Prappas property	49.502°	-117.274°	600 m					Jul 08	Jul 18	Jun 25 – Jul 23		Jul 01		Jun 25 -- Jul 23
5	RDCK	Nelson – Salmo R	49.389°	-117.218°	900 m		Jul 15									Jul 15
6	RDCK	Nelson – Apex wetlands	49.404°	-117.209°	900 m			Aug 15 – Aug 31	Aug 01 – Aug 21	Jul 22 – Sep 03	Jul 28 – Aug 24	Jul 01 – Aug 06	Aug 12	Jul 18		Jul 01 – Sep 03
7	RDCK	Nelson – Grohman Ck	49.501°	-117.377°	600 m						Jul 14					Jul 14
8	RDKB	Trail - Beaver Ck Provincial Park	49.059°	-117.613°	400 m								Jul 11	Jun 23 – Jul 14	Jun 28 – Jul 16	Jun 23 – Jul 16

[a]Elevations rounded to nearest 100 m. See text for observer information.

Table 1. Summary of locations and observation dates of Edith's Copper records in Canada since 2006.

ACKNOWLEDGMENTS

I thank Paul Prappas, Dean Nicholson, Norbert Kondla, and Christian Schmidt for graciously responding to my requests for information regarding their observations of this species in western Canada. Paul also generously shared images for use in this article. The discovery of Edith's Copper in the RDEK was made possible through the Pollination Pathway Climate Adaptation Initiative of the Kootenay Native

Plant Society (KNPS); butterfly surveys at Beaver Creek Provincial Park were a component of the "Building Climate Resilient Butterfly Habitat" project which was funded by BC Parks Living Lab Program and the BC Parks Licence Plate Program. Valerie Huff is the Pollination Pathway project manager. KNPS staff or contractors who accompanied me in the field during copper observations included Brenda Beckwith, Danielle Crumback, Angeline Emmott, and Emma Lognon. Thanks to Ministry of Agriculture for use of their map of the regional districts of southeastern BC. Evan McKenzie made available the unpublished report on plants at Beaver Creek Provincial Park and provided comments on the availability of native *Rumex* as potential host plants in the wider Kootenay area. Finally, thanks to Crispin Guppy for manuscript review.

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Checklist of the butterflies of Rhode Island

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ABSTRACT. In preparation for a book on Rhode Island butterflies, the current paper lists all species documented in the Ocean State with their county distribution, and early/late flight dates.

Additional key words: spring flight, summer flight.

INTRODUCTION

Having moved to Rhode Island in 1983, I contacted author Paul Opler and inquired which butterflies I might encounter in the state. Opler sent me a checklist in the form of a spreadsheet, which indicated a mere six species of butterflies recorded in the state. I immediately embarked on an intensive 2-year survey of Rhode Island butterflies, continuing through 1984. Interestingly, there was only one other lepidopterist at the time, Jack Friedel, who's data is incorporated into the survey. After moving out of Rhode Island, I continued annual spring and summer trips back to the state, for several years, then occasional trips to "blockbust" towns missing certain butterfly records. My subsequent contact with other Rhode Island lepidopterists was with Joanne Michaud and Rick Enser of The Nature Conservancy, who were surveying Rhode Island butterflies as well. Their data is also incorporated here. Over time, I managed to make contact with many other "butterfliers" with whom I established a reporting network. Martin Wencek, Clare Stone and family produced an enormous number of records almost daily since 1992 to the present. To increase interest in butterflies, I established the Ocean State Butterflies Yahoo Group in 2008, which functioned for several years and generated a large amount of data, in particular from contributions of Walter Bosse, who observed butterflies almost daily during the warm season. Subsequently, the Rhode Island Butterflies and Moths Facebook Group continued to produce photographic records from many contributors. More recently, the iNaturalist and e-Butterfly platforms have gained dominance on the internet, producing a very large number of verifiable records. The result is this checklist, current to 2024.

Fig. 1. *Argynnis idalia,* Charlestown, R.I., July 28, 1984. Photo by H. Pavulaan. Last observed in Rhode Island in 1991 (three observations).

CHECKLIST

Key:

Latin names follow Pelham (2023) with several minor changes. Common names follow the NABA (accessed online 2024) with several minor changes. Status indicates presence in Rhode Island, followed by counties in which each species was recorded. Counties are annotated as follows:

BRI = Bristol
KEN = Kent
NEW = Newport
PRO = Providence
WAS = Washington.

Lastly, early/late dates are indicated.

***PAPILIONIDAE* (Swallowtails)**

Eurytides marcellus marcellus (Zebra Swallowtail): Stray. KEN, PRO, WAS. June 20-July 19 (but one unspecified date in August).

Battus philenor philenor (Pipevine Swallowtail): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 14-October 19.

Papilio polyxenes asterius (Black Swallowtail): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 3-October 15.

Heraclides cresphontes (Giant Swallowtail): Breeding resident. BRI, KEN, NEW, PRO, WAS. July 14-September 17.

Pterourus troilus troilus (Spicebush Swallowtail): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 3-October 8.

Pterourus palamedes palamedes (Palamedes Swallowtail): Stray. WAS. June 12.

Pterourus glaucus glaucus (Eastern Tiger Swallowtail): Breeding resident. BRI, KEN, NEW, PRO, WAS. March 20-October 5

Pterourus canadensis (Canadian Tiger Swallowtail): Stray. KEN, WAS. April 18-July 9.

Pterourus bjorkae (New England Tiger Swallowtail (or) Bjork's Tiger Swallowtail): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 2-June 21. Recently described in The Taxonomic Report (Pavulaan, 2024) (**Figs. 2-3**).

***Pterourus* new species** (Mid-summer Tiger Swallowtail): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 29-September 12. Undescribed sibling species, proposed as a potential new species (Wang, 2017; Schmidt, 2020) (**Figs. 4-5**).

***PIERIDAE* (Whites and Sulphurs)**

Pyrisitia lisa lisa (Little Yellow): Stray, seasonal breeding resident. BRI, KEN, NEW, PRO, WAS. May 14-October 12.

Abaeis nicippe (Sleepy Orange): Stray, seasonal breeding resident. WAS. July 28-September 25.

Colias philodice (Clouded Sulphur): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 10-November 27.

Colias eurytheme (Orange Sulphur): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 13-December 17.

Phoebis sennae eubule (Cloudless Sulphur): Stray, seasonal breeding resident. BRI, KEN, NEW, PRO, WAS. June 24-October 24.

Phoebis philea philea (Orange-barred Sulphur): Historic stray. KEN. August 15.

Phoebis agarithe maxima (Large Orange Sulphur): Historic stray. PRO, WAS. August 26-September 17.

Anthocharis midea annickae (Falcate Orangetip): Historic stray. WAS. (Date unknown).

Pontia protodice (Checkered White): Stray, vagrant breeding resident. KEN, PRO, WAS. August 10-October 12.

Pieris rapae rapae (Cabbage White): Breeding resident. BRI, KEN, NEW, PRO, WAS. March 15-November 19.

Pieris brassicae brassicae (Large White): Historic accidental. "Rhode Island". (Date unknown).

Pieris oleracea oleracea (Mustard White): Historic record. NEW. (Date unknown).

***LYCAENIDAE* (Gossamer-wing Butterflies)**

Feniseca tarqinius tarquinius (Harvester): Breeding resident. KEN, PRO, WAS. May 2-September 2.

Lycaena hypophlaeas hypophlaeas (American Copper): Breeding resident. BRI, KEN, NEW, PRO, WAS. March 31-November 3.

Tharsalea hyllus (Bronze Copper): Historic resident. PRO, WAS. June 23-October 2.

Tharsalea epixanthe epixanthe (Bog Copper): Breeding resident. KEN, PRO, WAS. June 20-July 26.

Callophrys gryneus gryneus (Olive Juniper Hairstreak): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 8-August 13.

Callophrys hesseli hesseli (Hessel's Hairstreak): Breeding resident. KEN, PRO, WAS. April 29-July 31.

Callophrys niphon clarki (Eastern Pine Elfin): Breeding resident. KEN, PRO, WAS. April 8-June 17.

Callophrys irus irus (Frosted Elfin): Breeding resident. KEN, PRO, WAS. April 25-June 20.

Callophrys henrici henrici (Henry's Elfin): Breeding resident. KEN, NEW, WAS. April 25-June 4.

Callophrys polios polios (Hoary Elfin): Breeding resident. KEN, PRO, WAS. April 14-June 12.

Callophrys augustinus croesioides (Brown Elfin): Breeding resident. KEN, NEW, PRO, WAS. April 14-June 25.

Satyrium titus winteri (Coral Hairstreak): Breeding resident. KEN, NEW, PRO, WAS. June 28-August 22 (but one unspecified date in September).

Satyrium favonius ontario (Northern Hairstreak): Breeding resident. BRI, KEN, PRO, WAS. June 19-July 09.

Satyrium liparops strigosa (Striped Hairstreak): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 30-August 15.

Satyrium caryaevorus (Hickory Hairstreak): Breeding resident. BRI, KEN, PRO, WAS. June 19-July 16.

Satyrium calanus falacer (Banded Hairstreak): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 17-August 24.

Satyrium edwardsii edwardsii (Edwards' Hairstreak): Breeding resident. KEN, PRO, WAS. June 25-August 6.

Satyrium acadica acadica (Acadian Hairstreak): Breeding resident. KEN, PRO, WAS. July 2-July 17.

Strymon melinus humuli (Gray Hairstreak): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 25-October 11.

Calycopis cecrops (Red-banded Hairstreak): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 19-October 19.

Parrhasius m-album (White-M Hairstreak): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 23-October 4.

Glaucopsyche lygdamus couperi (Silvery Blue): Unknown status. KEN. June 5.

Celastrina lucia lucia (Northern Azure): Breeding resident. KEN.

Celastrina ladon (Spring Azure): Breeding resident. BRI, KEN, NEW, PRO, WAS. March 20-June 4.

Celastrina serotina (Cherry Gall Azure): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 18-June 18.

Celastrina neglecta (Summer Azure): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 8-October 6.

Cupido comyntas comyntas (Eastern Tailed Blue): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 13-October 19.

NYMPHALIDAE **(Brush-foot Butterflies)**

Libytheana carinenta bachmanii (American Snout): Stray, seasonal breeding resident. BRI, KEN, NEW, PRO, WAS. June 19-September 4.

Danaus plexippus plexippus (Monarch): Seasonal breeding resident. BRI, KEN, NEW, PRO, WAS. April 28-December 1.

Danaus gilippus berenice (Queen): Stray. NEW, WAS. June 24-August 4.

Heliconius charithonia tuckeri (Zebra Longwing): Accidental. PRO. September 6.

Dione incarnata nigrior (Gulf Fritillary): Stray. WAS. August 19-October 22.

Euptoieta claudia (Variegated Fritillary): Seasonal breeding resident. KEN, NEW, PRO, WAS. June 10-October 20.

Boloria bellona bellona (Meadow Fritillary): Breeding resident. NEW, PRO, WAS. May 26-August 16.

Boloria myrina myrina (Silver-bordered Fritillary): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 20-September 22.

Argynnis idalia idalia (Regal Fritillary): Historic. KEN, NEW, PRO, WAS. June 15-September 5. (**Fig. 1**).

Argynnis diana (Diana Fritillary): Accidental. NEW. June 22.

Argynnis cybele cybele (Great Spangled Fritillary): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 25-October 6.

Argynnis aphrodite aphrodite (Aphrodite Fritillary): Breeding resident. BRI, KEN, PRO, WAS. June 19-August 17.

Argynnis atlantis atlantis (Atlantis Fritillary): Historic. PRO. (Dates unknown).

Limenitis archippus archippus (Viceroy): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 26-October 12.

Limenitis arthemis arthemis (White Admiral): Breeding resident. KEN, NEW, PRO, WAS. June 7-September 15.

Limenitis arthemis astyanax (Red-spotted Purple): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 20-September 28.

Asterocampa celtis celtis (Hackberry Emperor): Breeding resident. BRI, PRO, WAS. July 10-September 25.

Asterocampa clyton clyton (Tawny Emperor): Breeding resident. BRI, PRO. July 8-July 27.

Aglais milberti milberti (Milbert's Tortoiseshell): Breeding resident. BRI, NEW, PRO, WAS. April 14-November 7 (Population hibernates).

Nymphalis l-album j-album (Compton Tortoiseshell): Breeding resident. KEN, NEW, PRO, WAS. March 20-September 7 (Population hibernates).

Nymphalis antiopa lintnerii (Mourning Cloak): Breeding resident. BRI, KEN, NEW, PRO, WAS. February 26-November 30. (Part of population hibernates, part migrates south).

Nymphalis interrogationis (Question Mark): Breeding resident and seasonal migrant. BRI, KEN, NEW, PRO, WAS. March 10-December 4 (Part of population hibernates, part migrates south).

Nymphalis comma (Eastern Comma): Breeding resident. BRI, KEN, NEW, PRO, WAS. March 3-December 3 (Population hibernates).

Nymphalis progne (Gray Comma): Historic. PRO. (Date unknown).

Nymphalis faunus faunus (Green Comma): Historic. PRO. (Date unknown).

Vanessa virginiensis (American Lady): Seasonal migrant, temporary breeding. BRI, KEN, NEW, PRO, WAS. March 20-November 22.

Vanessa cardui (Painted Lady): Seasonal migrant, temporary breeding. BRI, KEN, NEW, PRO, WAS. April 8-December 26.

Vanessa atalanta rubria (Red Admiral): Seasonal migrant, temporary breeding. BRI, KEN, NEW, PRO, WAS. April 2-November 13.

Junonia coenia coenia (Common Buckeye): Seasonal migrant, temporary breeding. BRI, KEN, NEW, PRO, WAS. May 11-November 21.

Euphydryas phaeton phaeton (Baltimore): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 7-July 25.

Chlosyne nycteis nycteis (Silvery Checkerspot): Breeding resident. BRI. June 14.

Chlosyne harrisii harrisii (Harris' Checkerspot): Breeding resident. BRI. June 9-June 29.

Phyciodes tharos tharos (Pearl Crescent): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 5-October 26.

Phyciodes **sp. near-*cocyta*** (Northern Crescent): Breeding resident. KEN, NEW, PRO, WAS. May 25-August 7.

Anaea andria (Goatweed Leafwing): Accidental or Stray. WAS. August 25.

Coenonympha california inornata (Inornate Ringlet): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 9-October 27.

Lethe anthedon anthedon (Northern Pearly Eye): Breeding resident. KEN, NEW, PRO, WAS. June 16-September 9.

Lethe eurydice eurydice (Eyed Brown): Breeding resident. WAS. July 4-July 12.

Lethe appalachia appalachia (Appalachian Brown): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 5-September 17.

Megisto cymela [summer flight] (Little Wood Satyr): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 23-August 13.

Megisto viola [spring flight] (Viola's Wood Satyr): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 4-July 5.

Cercyonis pegala alope (Common Wood Nymph): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 25-October 8.

***HESPERIIDAE* (Skippers)**

Cecropterus lyciades (Hoary Edge): Breeding resident. KEN, PRO, WAS. June 3-July 14.

Cecropterus bathyllus (Southern Cloudywing): Breeding resident. BRI, KEN, PRO, WAS. May 2-July 14.

Cecropterus pylades pylades (Northern Cloudywing): Breeding resident. BRI, KEN, PRO, WAS. May 21-July 30.

Urbanus proteus proteus (Long-tailed Skipper): Seasonal migrant. NEW, WAS. August 18-October 5.

Epargyreus clarus clarus (Silver-spotted Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 12-October 4.

Pholisora catullus (Common Sootywing): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 28-September 16.

Burnsius communis (Common Checkered Skipper): Stray. WAS. July 28-September 15.

Erynnis icelus (Dreamy Duskywing): Breeding resident. KEN, PRO, WAS. May 1-June 30.

Erynnis brizo (Sleepy Duskywing): Breeding resident. KEN, PRO, WAS. April 20-June 16.

Gesta martialis (Mottled Duskywing): Historic. WAS. May 13 (one undated specimen from July).

Gesta juvenalis juvenalis (Juvenal's Duskywing): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 13-June 27.

Gesta horatius (Horace's Duskywing): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 2-September 15 (one undated report from April).

Gesta funeralis (Funereal Duskywing): Stray. WAS. September 25.

Gesta baptisiae (Wild Indigo Duskywing): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 16-September 27.

Gesta lucilius (Columbine Duskywing): Historic. PRO. July 19-August 16 (one undated specimen from May).

Gesta persius persius (Persius Duskywing): Historic. BRI, WAS. May 9-May 28.

Euphyes dion (Dion Skipper): Stray. KEN, WAS. July 22.

Euphyes conspicua orono (Black Dash): Breeding resident. KEN, PRO, WAS. July 7-August 4.

Euphyes bimacula bimacula (Two-spotted Skipper): Historic. PRO, KEN. July 1-July 22.

Euphyes vestris metacomet (Dun Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 4-September 5.

Anatrytone logan logan (Delaware Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 23-August 19.

Hylephila phyleus phyleus (Fiery Skipper): Seasonal migrant. NEW, PRO, WAS. July 28-October 21.

Limochores origenes origenes (Crossline Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 23-October 6.

Limochores mystic mystic (Long Dash): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 27-September 14.

Polites themistocles themistocles (Tawny-edged Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 19-October 11.

Polites coras coras (Tawny-edged Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 17-October 17.

Polites egeremet (Northern Broken Dash): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 2-September 7.

Vernia verna (Little Glassywing): Breeding resident. BRI, KEN, NEW, PRO, WAS. June 4-September 19.

Atalopedes huron (Huron Sachem): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 15-October 26.

Hesperia leonardus leonardus (Leonard's Skipper): Breeding resident. KEN, NEW, PRO, WAS. August 6-September 21.

Hesperia metea metea (Cobweb Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. April 12-June 19.

Hesperia sassacus sassacus (Indian Skipper): Breeding resident. KEN, NEW, PRO, WAS. May 14-July 23.

Poanes massasoit massasoit (Mulberry Wing): Breeding resident. BRI, KEN, NEW, PRO, WAS. July 6-August 7.

Poanes viator zizaniae (Broad-winged Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. July 1-September 19.

Lon hobomok hobomok (Hobomok Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 22-July 17.

Lon zabulon (Zabulon Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 6-October 8.

Atrytonopsis hianna hianna (Dusted Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 15-July 14.

Amblyscirtes hegon (Pepper and Salt Skipper): Breeding resident. PRO, WAS. May 25-June 17.

Amblyscirtes vialis (Common Roadside Skipper): Breeding resident. KEN, PRO. June 3-June 6.

Nastra lherminier (Swarthy Skipper): Status uncertain. WAS. June 27-September 8.

Lerema accius (Clouded Skipper): Seasonal migrant. KEN, PRO, WAS. September 11-October 21.

Thymelicus lineola lineola (European Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 28-August 25.

Panoquina panoquin (Salt Marsh Skipper): Status uncertain. WAS. July 9.

Panoquina ocola (Ocola Skipper): Seasonal migrant. KEN, NEW, PRO, WAS. August 28-October 11.

Ancyloxypha numitor (Least Skipper): Breeding resident. BRI, KEN, NEW, PRO, WAS. May 25-October 16.

Calpodes ethlius (Brazilian Skipper): Historic. "Rhode Island". (Undated specimen).

Fig. 2. *P. bjorkae.* Female. May 15, 1990. Great Swamp Management Area, West Kingston, Washington Co., R.I.

Fig. 3. *P. bjorkae.* Male. June 3, 1984. Great Swamp Management Area, West Kingston, Washington Co., R.I.

Fig. 4. "Mid-summer Tiger Swallowtail". Female. August 1, 1984. Great Swamp Management Area, West Kingston, Washinton Co., R.I.

Fig. 5. "Mid-summer Tiger Swallowtail". Male. July 12, 2008. Newbury, Essex Co., MA.

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Addendum to: Determination of a new spring-flying species of the *Pterourus glaucus* complex (Papilionidae) in southern New England

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After description of *Pterourus bjorkae* (Pavulaan, 2024) it was subsequently decided to deposit the holotype (female) and allotype (male) in the McGuire Center for Lepidoptera and Biodiversity, Gainesville, Florida. 19 paratypes remain in the collection of the present author. Paratypes in the collection of Alex Grkovich have been transferred to the collection of C. Howard Grisham, Huntsville, Alabama. The holotype (female) bears a red label and the allotype (male) bears a blue label as shown below:

LITERATURE CITED

Pavulaan, H. 2024. Determination of a new spring-flying species of the *Pterourus glaucus* complex (Papilionidae) in southern New England. The Taxonomic Report 12(1): 26 pp.

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